The Commonwealth of Massachusetts

Department of Education

STRUCTURING SCHOOLS
FOR STUDENT SUCCESS . . . .

A FOCUS ON ATTENTION DEFICITS

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The Commonwealth of Massachusetts
Department of Education

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Dear Colleague:

The ability to pay attention is at the heart of learning. In order to learn in school, at home, and in the community, students must be able to pay attention. The problems associated with attention deficits are experienced by a significant number of students, and the challenge in addressing these students' needs rests with all school personnel.

This advisory, *A Focus on Attention Deficits*, provides educators and families with information and interventions for students who have attention deficits. We believe that with appropriate modifications many students with attention deficits can be successfully educated in regular education. The appendices, in particular, at the end of this technical assistance paper provide a number of suggestions for both educators and parents.

Many of the behavioral signs that students with attention deficits manifest, i.e., inattention, impulsiveness, overactivity, distractibility, are ones that all students may have at some time in their education. Therefore, the teacher's ability to accommodate student differences may be of great benefit to an entire classroom of students. As educators continue to serve a diverse student population, the development of modifications and accommodations will be crucial for ongoing student achievement.

Along with educational interventions, family support is needed. When educators and families work together, a richer learning environment can be fostered both at school and at home. School/home partnerships that focus on needed modifications will assist in student learning.

We hope that this advisory will promote this partnership.

Robert V. Antonucci

Robert V. Antonucci
Commissioner of Education

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◆ *What is an attention deficit?*

An attention deficit is a neurological condition that affects children, adolescents, and adults.* It is diagnosed by a cluster of developmentally inappropriate behaviors, including short attention span, easy distractibility, impulsive, thoughtless or careless behavior, and often, overactivity, difficulty sitting still, fidgety behavior or restlessness (see Appendix A, Diagnostic Criteria for Attention-Deficit/Hyperactivity Disorder). Children with attention deficits may appear to be academically competent but socially immature, easily frustrated, disorganized, unmotivated, lazy or in poor self-control (Busch, 1993). These problems are usually worse in situations requiring assigned work or chores, but should be seen, to some degree, in a variety of settings: at school, at home, in social situations and during after-school activities. Attention deficits are more common in boys than in girls; the ratio is approximately 3:1. Although there are many exceptions, boys with attention deficits are usually noted for their behavioral disruption in class, while girls are often quiet daydreamers or are perceived as "social butterflies." At least 50% of those with learning disorders also have attention deficits (Epstein, Shaywitz, Shaywitz, & Woolston, 1991).

It is important to appreciate that attention deficits are biological problems, despite the fact that their manifestations are almost entirely behavioral. This can make them difficult to diagnose. Furthermore, not every person with an attention deficit must have all behavioral signs of the disorder; one aspect of the disorder (inattention, impulsive behavior, restlessness, behavioral problems) may be more prominent than the others.

◆ *Policy clarification*

Both at the federal and state levels numerous questions have been raised relative to the eligibility of students with attention deficits for special education services. The information provided below offers assistance regarding the question of eligibility.

In September 1991, the United States Department of Education (Office of Civil Rights, Office of Special Education and Rehabilitative Services, and Office of Elementary and Secondary Education) issued a "clarification of policy" memorandum (DPS Memorandum 92-013) regarding the needs of children with Attention Deficit Disorder (ADD). USDOE points out that Congress did not add ADD or Attention Deficit Hyperactivity Disorder (ADHD) as a separate disability category when the Education of the Handicapped Act (now the Individuals with Disabilities Education Act (IDEA)) was reauthorized in 1990 "since children with ADD who require special education and related services can meet the eligibility criteria for services under Part B [of the IDEA]." The memo explains that such children are eligible if they meet the criteria for a category of disability already written into

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* Throughout this technical assistance paper the term attention deficit is used rather than Attention Deficit Disorder (ADD) or Attention Deficit Hyperactivity Disorder (ADHD). The Department has chosen this term to stress the focus on attentional processes and not enter a dialogue related to changing terminology.

the law; for example, "other health impaired," "specific learning disability," or "severely emotionally impaired."

Key points of the USDOE's "clarification of policy" memorandum regarding the needs of students with ADD are summarized below.

- Students with ADD may be eligible for services under the IDEA if they meet the eligibility criteria applicable under its disability categories.

- School districts are responsible for evaluating all students who may need special education and related services, including those with a medical diagnosis of ADD. A district cannot refuse to evaluate a student.

- If a student with ADD is determined eligible for services under the IDEA, an "individualized education program" (IEP) as prescribed in the IDEA, must be developed and a full continuum of placement alternatives, including the regular education classroom, must be available for providing special education and related services as specified in the IEP.

- If there is a disagreement over a student's eligibility for special education, the parent may request a due process hearing, pursuant to the IDEA.

- Students who do not meet the eligibility requirements under the IDEA may, nonetheless, be considered "handicapped" under Section 504 of the Rehabilitation Act of 1973. Section 504 regulations define "handicapped person" as "... any person who has a physical or mental impairment which substantially limits a major life activity..."(34 CFR §104.3 (j)). Depending on the severity of the ADD, a student may be entitled to services under Section 504 and its implementing regulations.

- If a student is a "qualified handicapped person" under Section 504, he/she is entitled to a free appropriate public education (FAPE). Under Section 504, FAPE consists of regular or special education and related aids and services that are designed to meet the student's individual needs. Students with ADD/ADHD require a range of strategies from modifications of the regular classroom environment to special education and related services. For students eligible for services under Section 504 it is recommended that a written plan for the student be developed. Although not required, development of an Individualized Educational Plan (IEP) in accordance with Part B of the IDEA, is one means of meeting the FAPE requirements of Section 504.

In 1992, the definition of "a school age child with special needs" was amended in Massachusetts statute. This change prompted the Massachusetts Department of Education to develop definitions of disability and impairments (see *Eligibility Guidelines for Special Education*, September 1992, and Chapter 766 Regulations, September 1992 Amendments). Definitions of ADD or ADHD were not included. Traits associated with ADD/ADHD (inattention, impulsivity, or hyperactivity) were also not listed under the functional definitions of health and/or neurological. Although requested by some individuals and

groups, the Board of Education did not define the term "disability" within the Chapter 766 Regulations ¶104.0 definition of "a child in need of special education" specifically to include ADD/ADHD.

Key points of Massachusetts Department of Education's Chapter 766 Regulations and *Eligibility Guidelines for Special Education* regarding the needs of students with ADD/ADHD are summarized below.

- Teacher Assistance Teams or Building Based Support Teams are effective mechanisms for developing modifications to assist students in regular education classrooms.

- In order to qualify for special education students must have a disability **and** be unable to make effective progress in regular education because of the disability.

- The definition of "a school age child with special needs" does not allow the labeling of students by disability. Therefore, the listing of a specific disorder (ADD/ADHD) is inconsistent with the functional, non-labeling approach that is inherent in Massachusetts' statute, regulations, and guidelines.

- Students with ADD/ADHD may be eligible for special education if they meet the eligibility criteria that <u>are</u> included in the *Guidelines for Special Education* and the Chapter 766 Regulations. Students with ADD/ADHD may exhibit difficulties subsumed within one or more of the functional definitions of the specific impairments, e.g., health, neurological, listed in Chapter 766 Regulations ¶104.0 (b). Broad-based assessment data, based on sources of information from multiple contexts, would need to establish that learner traits, characteristics, or behaviors were limited or impaired in one or more areas of impairments and that a pattern of difficulty persisted across settings and over time.

In conclusion, students who are referred for special education because of a suspected disability or a suspected diagnosis of ADD/ADHD must receive a nondiscriminatory, multidisciplinary evaluation to determine eligibility for special education as prescribed in current federal and state law and regulations. In Massachusetts a student determined eligible for special education must be "a child in need of special education" as defined by Chapter 766 Regulations ¶104.0. If a student is found not to be eligible for special education, he/she may be eligible for services under Section 504.

◆ *Differences in presentation between preschoolers, school-age children, and adolescents*

The most common manifestation of attention disorders in preschoolers is motoric overactivity, sometimes including rough or aggressive play. Difficulty sustaining attention, especially in large group activities, is characteristic. Preschool children with attention deficits do not seem to have mastered all of the social or pre-academic skills acquired by their peers. The American Psychiatric Association (1987) reported that approximately half of the attention deficits that occur have an onset before age 4. Ongoing observations and anecdotal records by preschool personnel and family members are helpful in diagnosing attention deficits.

In school-age children, short attention span, impulsive and seemingly careless work habits, poor listening skills, low frustration tolerance, disruptiveness in class, problems with written language and copying tasks, and difficulty settling down to work and completing work (both at home and at school) are the most common manifestations. Social difficulties may emerge because of these behaviors. It is in school-age students that concerns emerge about laziness, poor motivation, or a sense that the student "could do it if he/she wanted to." Restlessness or fidgety behavior, rather than true hyperactivity, is common, as is talking out of turn, due to the underlying neurobiology of attention deficits. Children with attention deficits are often very disorganized: they may forget to take home the necessary homework assignment and materials. However, they can be very bright and unusually creative with ideas and hands-on projects.

Adolescents with attention deficits often appear to be "turned off" by academic tasks. They tend to be poor listeners, notetakers and copiers. They have difficulty remembering the details of material they have read. Disorganization is prominent; students have difficulty writing down and remembering assignments, and difficulty budgeting time. In addition, they often are not able to develop good study skills. They have particular difficulty when asked to put their ideas in writing and when given long-range assignments. They tend to procrastinate work and chores, and may have difficulty completing work that they begin. Some may devote too much time to social or extracurricular activities without considering the consequences on their academic performance.

Students of all ages with attention deficits are vulnerable to developing low self-esteem. Given their difficulties with learning and achieving, they often have experienced more frustration and failure than their peers without attention deficits. Their sense that they are not very competent is compounded by frequently hearing negative remarks about their behavior and performance. In addition, the very nature of their symptoms may interfere with the development of satisfying peer relationships. While not every student with attention deficits will be burdened with low self-esteem and a sense of inadequacy, many will. Both home and school interventions must address issues of self-esteem. Without this support children and adolescents with attention deficits can develop feelings of hopelessness and failure, prompting them to retreat from academic and social opportunities.

◆ *Broad approaches to the needs of students with attention deficits in the classroom*

Usually children with biologically-based attention deficits require classroom accommodations. Such accommodations can help these students become more successful learners, especially in their academic work. Conceptually, it makes sense to educate most children with attention deficits in regular education since their reasoning and intellectual abilities may be normal, and since their disorder usually has an impact on all of their academic work. Part-time "pull-out" programs cannot provide sufficient structure nor the modifications needed by these students throughout the day that would enable them to generalize skills. With appropriate classroom accommodations in regular education many children with attention deficits can be educated successfully.

With education, training, and support teachers can address the educational needs of students with attention deficits. This will require that teachers modify the educational environment, and, at times, that both expectations and teaching styles be modified. Both in-class and homework modifications may be needed. Some of the modifications recommended in Appendix B can be integrated into the work the entire class is given, while others will be instituted only on an individualized basis. These modifications are suggested for use in both regular and special education settings.

Other non-medical interventions include behavioral interventions, especially positive reinforcement, increasing the attractiveness of tasks, social skills tutoring, and individual or group psychotherapy. Pharmacological interventions involve the use of some type of medication to help the student's ability to attend and to help control impulsive behavior (see Appendix C, The Role of Medication in Helping Children with Attention Deficits).

Once a student's attention deficit has been identified, teachers can anticipate the areas in which the student may have some difficulty (see Appendix B, School Strategies, Accommodations, and Modifications for Students with Attention Deficits and Appendix D, Questions for Teacher Assistance Teams to Ask Regarding a Student with an Attention Deficit). Often a Teacher Assistance Team, composed of regular and special educators, can provide help to teachers and parents in developing, implementing, and evaluating classroom and homework accommodations. Teachers should meet with their students with attention deficits to discuss the most helpful and appropriate accommodations for each student. This proactive approach can enable the teacher to form an alliance with the student, foster student investment in his/her own success, and preserve the student's fragile self-esteem. Such a relationship can help the student with an attention deficit become an enthusiastic and capable learner, and can be satisfying and rewarding to both teacher and student.

In fostering the student's self-esteem, teachers should also focus on the student's areas of strength and see how these might be used in the school setting. Many students with attention deficits have a wide variety of interests and skills. Encouraging students to engage in school activities, e.g., peer tutoring, performing in school plays, assisting with classroom chores and errands, fosters a sense of responsibility and enables students to feel more competent and motivated in the school environment. It is also important that parents and schools work closely together in the important task of enhancing a student's positive self-esteem.

◆ *Needs of families of students with attention deficits*

Raising a child is always a challenging experience. For families of the child with an attention deficit, the challenge can be particularly difficult. The child is often disorganized, inattentive, and may not comply promptly with parent requests. Homework may not be completed. Mealtime and other family times can be disruptive. Peer and sibling interactions can be strained. Parents may disagree with each other about the appropriateness of expectations and disciplinary measures.

In short, a child with an attention deficit has an impact on many aspects of family life, including the parent-child, marital, and sibling relationships. Parents may find that they spend a considerable amount of time and energy with a child with an attention deficit, sometimes with few positive results. The child's problems can lead to a parent feeling uncertain with and confused by their parenting role.

Children with attention deficits have their problems, as all children do. However, it is important to remember that they are often imaginative, enthusiastic, sensitive, and bright. Some days a child is able to perform certain tasks, and other days, he/she is not. For these reasons, parenting a child with attention deficits can be both exhilarating and frustrating.

In addition to the need for empathy and support, families appear to benefit from (Moghadam, 1987; Simpson, 1988; Barkley, 1987):

1. early identification and intervention;
2. accurate information about attention deficits;
3. assessment of the family's specific needs;
4. communication, coordination, and consistency between home and school;
5. involvement in planning for and intervening with their child.;
6. participation in parent education programs; and
7. participation in parent support groups.

The school can play a significant role in assisting the family. The specific needs of the family of a child with an attention deficit should be addressed jointly by both the school and the home. While not all of these needs can be met through school-based programs, the support of the school can be crucial in numerous ways.

For instance, most families respond well to support and helpful suggestions from school personnel (see Appendix E, Home Strategies, Accommodations, and Modifications for Students with Attention Deficits). Many families have found it helpful to attend local support groups for families of children with attention deficits. Others may benefit from a review of parenting and behavior management principles by the guidance counselor or school psychologist. Sometimes, this can be done in a group format at the school, for all interested families. Family education and support can establish and maintain a consistency of approach between home and school that greatly enhances the effectiveness of the student's school program.

◆ *Summary*

This technical assistance paper supports the belief that appropriate modifications are often needed to meet the needs of students with attention deficits. With the implementation of appropriate interventions, students with attention deficits can be successful. The practical information contained in this paper is intended to assist teachers, administrators, and families in their ongoing efforts to support student learning.

The development of intervention strategies should assist students both at home and in school. While some may be relatively simple, e.g., seat arrangement, other modifications may entail effective collaboration and coordination between home and school, e.g., monitoring of student book bag and homework assignments. In both examples, the focus on modifications in the student's learning environment is crucial to student success. Further, other interventions, including the teaching of social and organizational skills, often are helpful to students with attention deficits.

Both students with attention deficits who require special education and those who do not require special education pose a challenge to educators across the Commonwealth as they strive to accommodate students in regular education classrooms.

APPENDIX A

*Diagnostic Criteria for Attention-Deficit/Hyperactivity Disorder**

A. Either (1) or (2):

(1) Inattention: At least six of the following symptoms of inattention have persisted for at least six months to a degree that is maladaptive and inconsistent with developmental level:

(a) often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities

(b) often has difficulty sustaining attention in tasks or play activities

(c) often does not seem to listen when spoken to directly

(d) often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behavior or failure to understand instructions)

(e) often has difficulties organizing tasks and activities

(f) often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)

(g) often loses things necessary for tasks or activities (e.g., toys, school assignments, pencils, books, or tools)

(h) is often easily distracted by extraneous stimuli

(i) is often forgetful in daily activities

(2) Hyperactivity-Impulsivity: At least six of the following symptoms of hyperactivity-impulsivity have persisted for at least six months to a degree that is maladaptive and inconsistent with developmental level:

Hyperactivity

(a) often fidgets with hands or feet or squirms in seat

(b) often leaves seat in classroom or in other situations in which remaining seated is expected

(c) often runs about or climbs excessively in situations where it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness)

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* Reprinted from *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV).* Washington, DC: American Psychiatric Association, 1994.

(d) often has difficulty playing or engaging in leisure activities quietly

(e) is often "on the go" or often acts as if "driven by a motor"

(f) often talks excessively

Impulsivity

(g) often blurts out answers before questions have been completed

(h) often has difficulty awaiting turn

(i) often interrupts or intrudes on others (e.g., butts into conversations or games)

B. Some symptoms that caused impairment were present before age seven.

C. Some impairment from the symptoms is present in two or more settings (e.g., at school, work, and at home).

D. There must be clear evidence of clinically significant impairment in social, academic, or occupational functioning.

E. Does not occur exclusively during the course of a Pervasive Developmental Disorder, Schizophrenia or other Psychotic Disorder, and is not better accounted for by another mental disorder (e.g., Mood Disorder, Anxiety Disorder, Dissociative Disorder, or a Personality Disorder).

Code based on type:

314.01 Attention-Deficit/Hyperactivity Disorder, Combined Type: if both criteria A(1) and A(2) are met for the past six months

314.00 Attention-Deficit/Hyperactivity Disorder, Predominantly Inattentive Type: if criterion A(1) is met but not criterion A(2) for the past six months

314.01 Attention-Deficit/Hyperactivity Disorder, Predominantly Hyperactive-Impulsive Type: if criterion A(2) is met but not criterion A(1) for the past six months

Coding note: for individuals (especially adolescents and adults) who currently have symptoms that no longer meet full criteria, "in partial remission" should be specified.

314.9 Attention-Deficit/Hyperactivity Disorder Not Otherwise Specified

This category is for disorders with prominent symptoms of inattention or hyperactivity-impulsivity that do not meet criteria for Attention Deficit/Hyperactivity Disorder.

APPENDIX B

School Strategies, Accommodations, and Modifications for Students with Attention Deficits

The following are strategies, accommodations, and modifications that can be used to effect some of the environmental changes and supports needed by students with attention deficits. Establishing a regular classroom routine and beginning each day with the same routine can be beneficial. Support from other professionals can lead to new ideas. The suggestions below represent some interventions that can facilitate success in the classroom. It is hoped that these suggestions will offer ideas that, in turn, will lead to other successful interventions.

Behavioral characteristics	Strategies, accommodations, and modifications
1. Fails to give close attention to details or makes careless mistakes.	Help the student to view him/herself as a competent learner. Have student check work with calculator or spellchecker to assist in identifying his/her own mistakes. Give student a "proofreading checklist." Have student proofread work at a later time, when he/she can take a new look. Point out items that contain errors; challenge the child to find his/her mistake within that item.
2. Has difficulty sustaining attention.	Break activity into small segments that are within the child's work capacity. Encourage breaks between segments or activities. Rotate tasks periodically. Provide incentives for on-task behavior. Provide assistance, e.g. peer tutor, to help student stay focused. Encourage interactive learning. Choose high-interest tasks. Gradually extend student's work period. Modify the curriculum based on the student's academic needs and ability to persist.
3. Doesn't seem to listen.	Begin tasks with a readiness signal. Begin lectures with a summary of what is to be discussed, what to listen for. State important information more than once and in more than one way. Use body language and visual cues. Break instructions into short units. Rephrase a question if no immediate response. Repeat relevant information. Encourage student to make and maintain eye contact. Privately, ask student to paraphrase what was just said (if student is not sure, explain again pleasantly). Assign a peer tutor to assist student when he/she forgets instructions. Encourage listening by reducing unrelated visual and auditory stimuli. Ask students to comment on or restate an answer from a classmate. Minimize notetaking in order to encourage active listening. Provide frequent review in an ongoing, systematic manner.

4. Poor follow-through.	Increase teacher supervision and interactive support. Be positive and encouraging. Help the student make a list of tasks to cross off as completed. Decrease expectations for independent work.
5. Is disorganized.	Teach organizational techniques. Use folders, calendars, and other organizational aids. Supervise packing of book bag. Coordinate in-school organizational support with similar family support at home. If possible, have a duplicate set of textbooks available for home use. Provide graphic organizers. Remind student to turn in completed homework.
6. Avoids sustained mental work; appears unmotivated.	Break tasks into subtasks. Try a new way to present material to spark interest. Help student get the task started and completed. Provide constructive feedback and suggestions *privately*, either on the spot or after class. Be sure to combine instruction with information on the purpose of activity or assignment, how the assignment relates to other school work, how the student can assess his/her work. Negotiate incentives for work; plan to change these as needed.
7. Often loses things.	Make use of organizational aids, e.g., desk organizer. Label belongings. Assist student in preparing work in an organized space. Distribute papers one at a time. Have student turn in or put away completed work before beginning a new task. See recommendations in #5 above.
8. Is distracted easily.	Arrange the environment to minimize visual and auditory distractions. Find a quiet area in the room where the student can work. Seat the child near the front of the room with quiet students. Use earphones or auditory trainer to block extraneous sound. Recommend the use of a marker, card, or finger to block out distractions while reading. Use study carrels if this can be done in a socially acceptable manner. Highlight salient features of an activity. Use color coding. Provide extra space between problems or fold papers so that student has fewer distractions per page. Use a variety of non-verbal attention-getting devices, e.g., wink, nod, thumbs up, touch on the shoulder. Introduce novelty into learning activity. Avoid repetitive or rote work whenever possible.

9. Is forgetful.	Establish a structured and predictable classroom environment. Use checklists, e.g., homework checklist. Assist student or provide peer tutor to write down assignments. Communicate frequently with family when a task must be remembered so that there will be home support. Try to be helpful and supportive when the student *does* forget; avoid being critical of forgetful behavior. Help the student to feel proud when he/she does remember correctly.
10. Is restless or overactive.	Build movement into lessons. Let the student work while standing up. Allow the student non-disruptive ways to fidget, e.g., tapping fingers, squeezing an eraser, etc. Provide frequent breaks from work with opportunities to move around the classroom. Offer students multisensory, hands-on activities.
11. Blurts out answers, difficulty awaiting turn or waiting in line.	Deal with interruptions in a positive manner. Praise appropriate hand-raising behavior. Acknowledge raised hand (and student's competence for knowing the answer), but explain that you need to give other children a turn. Provide an enjoyable (but quiet) activity for the student to do when the class must wait in line, or have the student join the line at the last minute.
12. Is impulsive.	Recognize impulsive errors on tests and homework and help student correct them, instead of penalizing student with a lower grade.
13. Seems immature socially.	Use cooperative learning to teach social skills, e.g., how to make and keep friends, how to describe one's feelings. Utilize role-playing. Help student to appreciate what he/she likes in self and others. Consult with school psychologist to consider other interventions, e.g., social skills group.
14. Problems copying written work: difficulty getting ideas into written form or difficulty organizing written narrative.	Provide alternatives to writing assignments, e.g., hands-on project, oral report. Substitute teacher-prepared worksheets for tasks requiring copying from blackboard. Spend time "brainstorming" before student begins written assignments. Provide time for student to learn how to use a word processor. Encourage student to use a word processor. Review draft of student's work and make suggestions for work organization and revision. Discuss with student techniques that helped in the past and what help is useful. Help the student to view him/herself as a competent learner. Help student feel that you understand his/her approach to learning, and that you are an ally and an educational partner.

15. Difficulty completing work in a timely manner; procrastinates when work must be done.	Help student get started on a task after the group has been given directions. Use incentives to encourage student to stay on-task. Shorten assignments, emphasizing accuracy and quality of work, not volume of work. Place time limits on homework. As needed, allow extra time for student to complete work; negotiate modified deadlines, untimed examinations.
16. Poor study skills; poor time management; waits until deadlines to begin work.	Break tasks into components and intermediate products; ensure that student knows deadlines for each of these. Help student to estimate realistically how long assignments will take. Help student plan weekly or nightly workload.

APPENDIX C

The Role of Medication in Helping Children with Attention Deficits

Betsy Busch, M.D.

A growing body of research has made it clear that attention deficits are caused by biological differences in brain chemistry. Every intervention or therapy — medical *or* non-medical — that is used to help children with attention deficits must take this fundamental information into account.

The best programs for helping most children with attention deficits are those that have both medical and non-medical components. Medicine and non-medical interventions are complementary. Each treatment works better when the other is also in use. If children cannot concentrate adequately, it is difficult for them to apply what they just have learned in the classroom to their next assignment. Medication may help children to apply what they know more consistently. Conversely, while medication alone can help children to be more attentive and better able to work, it does little to help organizational difficulties and study skills. These skills must be specifically taught.

Medication should *never* be considered a substitute for the educational accommodations and special teaching techniques that must be employed with children who have attention deficits. Medication cannot replace good behavioral interventions and psychotherapies. But it can help all of these non-medical interventions to be more effective, and that is its great potential benefit.

The Stimulant Medications

The stimulant class of medications is the most widely used family of medical treatments for attention deficits. The most common of these are methylphenidate (Ritalin™), dextroamphetamine (Dexedrine™) and pemoline (Cylert™). The stimulants are usually the best place to begin when treating children with attention deficits because there is a very high likelihood that these medications will produce beneficial effects and a very low risk of serious side-effects from these medications. These medications seem to work by "turning on" the child's underactivated attention and self-control centers. When these medications are working properly, they should make the brains of children with attention deficits behave more like the brains of children who do not have attention deficits. This enables the child's natural intelligence, thinking skills and his/her own wish to learn and be a successful student to be used to best advantage.

The beneficial effects that can be demonstrated when stimulant medication is used include: 1) improvement in ability to pay attention, increased reflectiveness and decreased impulsivity; 2) improved academic performance, learning and cognitive performance; 3) better ability to initiate, persist at and complete work, and increased work output and quality; 4) improvements in social interactions with peers and family members, more positive behaviors, less oppositional behavior, less aggression, improved self-esteem; 5) in adolescents, enhanced information processing, more accurate answers, better discrimination, analysis and memory.

The most common side-effects of stimulant medications are usually fairly minor and easy for the physician to manage. They include: 1) appetite suppression (usually only when the

medication is working; appetite is usually normal when each dose of medication wears off); 2) sleep disturbance, usually difficulty falling asleep at night; 3) minor and clinically insignificant changes in pulse and blood pressure (usually asymptomatic); 4) "rebound" irritability, emotional lability, hyperactivity seen for 20-60 minutes when medication wears off (this is usually easy to correct); 5) headache or stomachache; and 6) possibility of mild suppression of height growth.*

Uncommon, but more serious, side-effects include: 1) over-controlled, glassy-eyed, or sedated appearance as a result of too large a dose of medication; parents and teachers sometimes describe the child as looking "drugged" or "like a zombie"; conversely, shaky or jittery feelings also can result from too large a dose of medication. Both of these are usually easily corrected with a slightly lowered medication dose; 2) tics, muscle twitches, picking at clothes, nails or skin, or other involuntary movements; these are usually easily reversed if the medication is discontinued; 3) behavioral changes such as sadness, tearfulness or emotional lability; there are *rare* reports of psychosis precipitated by stimulants; but toxic psychosis has more often been precipitated by IV amphetamine use or massive overdose.

Stimulants begin to work very quickly and wear off quickly. Short-acting stimulants generally start working within 20 minutes and wear off within 3-4 hours. Sustained-release methylphenidate or dextroamphetamine usually starts working within 30-90 minutes and usually lasts 6-8 hours (there is considerable individual variation, however). Pemoline is more long-lasting than the other stimulants, but it may take several weeks before an appropriate blood level is reached. Thus, for the stimulants *other than* pemoline, teachers should be able to notice changes almost immediately after a child begins a clinical trial of medication. However, it may take several days of consistent behavioral improvement before a full conclusion about the effects of a given dose of medication can be drawn.

Tricyclic Antidepressant Medications

The second most commonly used and best-studied family of medicines for treating children with attention deficits are the tricyclic antidepressant medications. The most widely used are imipramine (Tofranil™) and desipramine (Norpramin™). In general, the tricyclic antidepressant medications are considered the next family of medicines to try after the stimulants. The tricyclic antidepressants usually work no better than, and are sometimes less effective than, the stimulants for treating attention deficits. Importantly, the potential risks and side-effects with the antidepressant medications can be more serious than those commonly seen from stimulant medication, so tricyclic antidepressants are usually reserved for those students who do not do well on stimulant medication, or for those whose physicians feel that there is an additional reason to use an antidepressant.

The beneficial effects of the tricyclic antidepressants include longer-acting effects than most of the stimulants. There is usually less wear-off effect, and students usually can avoid in-school administration of their medicine. These medications may cause more gradual, less dramatic improvements than those seen with the stimulants, but many of the other beneficial effects that have been reported are similar to those described for stimulant medication. Tricyclic antidepressants may be a good choice to consider when attention

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* This is controversial; it is still unclear whether this side effect occurs at all. At worst, some think that stimulant medications may suppress up to 2% of total height growth, so if stimulants do affect height growth, it appears to be a relatively minor effect.

deficit and depression co-exist, and they sometimes work well when attention deficit and mild anxiety problems co-exist. Some physicians feel that tricyclic antidepressants are a good choice for children with attention deficits who also have muscle tics.

The common side-effects of tricyclic antidepressants include: 1) dizziness, especially when changing from a supine or sitting to a standing position; 2) drowsiness; 3) constipation; 4) dry mouth; 5) headache; 6) stomachache; 7) sleeplessness and 8) minor changes in heart rhythm, blood pressure and heart rate.

There are many potentially serious side effects from tricyclic antidepressants, although most are quite rare when the medication is prescribed and taken properly and when appropriate medical follow-up occurs. There is a small risk of potentially serious heart rhythm disturbances, and several deaths have been reported among children with attention deficits who have taken tricyclic antidepressants. Other serious side effects can involve the liver, bone marrow and neurological systems, among others.

The Clinical Trial and Ongoing Treatment

One of the perplexing problems when treating attention deficits medically is that physicians *cannot* predict in advance which medications or dosages of medication will work best for a given child or adolescent. Therefore, all medications are given as a "clinical trial." During this trial period, a medication regimen is tried, adjustments in dosage and timing are made, if necessary, and the effects on the child, both beneficial and adverse, are evaluated. Once the medication and dosage are chosen, the clinical trial is completed. The child, family and physicians then decide together whether to continue/discontinue the medication or try a different medication. Proper follow-up with a physician must be an integral part of any medical treatment of attention deficits.

Teachers and parents are important in this evaluation process. Their feedback about the child's attention, impulse control, activity level, ability to initiate and complete work, work accuracy and efficiency, behavior, mood and social interactions is of crucial importance to the evaluation of a new medication regimen. Careful teacher observations, shared with parents or physicians, are of immense value whenever a child is being treated with medication. Teachers may be the first to notice a medication's side-effect, or may be the first to perceive that a child may be outgrowing his/her medication dosage. Similarly, teachers' observations about a medication's benefit and helpfulness to a student may be a key factor in determining whether the correct medication and dosage have been prescribed. Parents, teachers and the prescribing physician, often in conjunction with support from the school nurse, should view themselves as a team working together on a child's behalf.

A number of other medications have been tried, alone and in combination with others, to help children with attention deficits. Physicians are learning and understanding more each week about new ways to help children with attention deficits. At the same time, there are many things about attention deficits and their treatment that are still very poorly understood. Therefore, continued changes, improvements and new approaches to medical treatment should be expected in the months and years ahead.

APPENDIX D

Questions for Teacher Assistance Teams to Ask Regarding a Student with an Attention Deficit

- Where and near whom should the student be seated in the classroom?
- Would it be helpful for the student to use visual or auditory methods of screening out distractions, such as study carrels or headphones?
- What is the student's organizational skill level? What are the student's academic needs? What level of functioning can be expected in the classroom environment?
- Which subjects are the most difficult and which are the easiest for the student?
- What types of explanations or examples are most easily understood by the student?
- What is the student's approach to learning? Does the student seem most responsive to visual, auditory, and/or kinesthetic presentations of information to be learned? Is the student helped or confused by multisensory presentations?
- With what length of lesson presentation can the student cope?
- Should the length of homework assignments in selected subjects be modified?
- Would the student respond well to computer-assisted instruction?
- Do assignments need to be modified in terms of the number of problems per page?
- Would it be helpful to the student to highlight instructions?
- Would the student benefit from the use of oral exams?
- What type of assistance is needed to help the student organize his/her belongings?
- What kinds of incentives might be helpful to the student? Time working on a computer? Time to pursue a special project or interest? A special privilege?
- How can a teacher recognize when an emotional or behavioral outburst is coming? Would the student benefit from having a place to go to calm down either after, or preferably, before such an outburst occurs?
- How well does the student recognize appropriate versus inappropriate social behavior? Would direct modeling and practice of appropriate behavior be helpful?
- Does the student have existing positive social skills that can be reinforced to serve as building blocks for developing other skills?
- How can a school/home alliance be formed to benefit the student?

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* Adapted with permission from *ADHD: A Guide to Understanding and Helping Children with Attention Deficit Hyperactivity Disorder in School Settings*, Minneapolis: University of Minnesota, 1991.

APPENDIX E

Home Strategies, Accommodations, and Modifications for Students with Attention Deficits

The following are strategies, accommodations, and modifications that can be used by parents and families to effect environmental change and support a child with an attention deficit. Attending parent support meetings provides opportunities to learn from other parents and receive up-to-date information. The suggestions below represent minimal interventions that can facilitate success and improved self-esteem in the home. It is hoped that the suggestions will offer ideas that, in turn, will lead to other successful interventions.

Behavioral Characteristics	Strategies, Accommodations, and Modifications
1. Expresses an abundance of energy. Often runs about or climbs excessively in situations where it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness).	Provide daily outside activities. Provide indoor activities that involve lots of movement. Create an area for high energy play. Enroll child in extracurricular activities in which he/she can be successful.
2. Often loses things necessary for tasks or activities, e.g., school assignments, pencils, books, tools, toys.	Keep the home well organized. Establish household routines. Create a clutter-free work area. If possible, maintain an extra set of books at home. Coordinate a system with school. Supervise packing of bookbag. Help organize papers to be turned in.
3. Often has difficulty sustaining attention in tasks or play activities.	Reward nonhyperactive behavior. Offer praise. Provide a quiet study area for doing homework. Have child work for a specified amount of time, based on his/her ability to attend, then stop, even if work is not yet complete. During play, provide a reasonable, not excessive, number of toys that are safe and unbreakable.
4. Engages in aggressive behavior. Engages in attention-getting behavior.	Set and maintain firm limits. Eliminate unnecessary rules. Provide a few clear, consistent important rules. Add additional rules according to child's pace. Establish a "time-out" area. Avoid physical punishment. Avoid scolding and negative comments. Provide calm adult models. Provide supervised opportunities that promote successful social interaction with peers.

APPENDIX F

National and State Resources

Newsletters

Challenge
A Newsletter on Attention Deficit Hyperactivity Disorder
P.O. Box 488
West Newbury, MA 01985
(508) 462-0495

CH.A.D.D.ER and *THE CH.A.D.D.ER BOX*
Publications of CH.A.D.D.
499 Northwest 70th Ave., Suite 308
Plantation, FL 33317
(305) 587-3700

A.D.D.ult News
2620 Ivy Place
Toledo, OH 43613

Organizations

Attention Deficit Information Network (AD-IN) Inc.
475 Hillside Avenue
Needham, MA 02194
(617) 455-9895

CH.A.D.D. (Children and Adults with Attention Deficit Disorders)
499 Northwest 70th Ave., Suite 308
Plantation, FL 33317
(305) 587-3700

National A.D.D.A. (Attention Deficit Disorder Association)
(800) 487-2282
(508) 746-3959

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